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ABSTRACT

To assess the concurrent validity of the Strong-Campbell Interest Inventory (SCII) General Occupational Theme scores for both males and females, Theme scores of freshmen in a liberal arts college were compared with expressed interests. Theme scores were compared by sex and according to criterion groups classified by Holland's occupational types on their first three expressed interests. (The occupational types are Realistic, Investigative, Artistic, Social, Enterprising, and Conventional.) As expected, the Artistic and Social themes were generally the only valid categories when classified with the three expressed interests. Male and female differences also appeared for these types, leading the researchers to conclude that the General Themes may be more predictive for males than females. Other General Themes, except for some Realistic and Conventional, had little validity for this college population. This apparent lack of current validity of some of the tested interest Themes led the researchers to recommend the use of both expressed and inventoried interest measures in career counseling. (Authors/MEK)

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Concurrent Validity of the Strong-Campbell Interest Inventory General Occupational Theme Scores for Males and Females in a Small Liberal Arts College

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Abstract

Freshmen in a liberal arts college were compared on their Strong-Campbell Interest Inventory General Occupational Theme scores by sex and according to criterion groups classified by Holland's types on their first three expressed interests. As expected, the Artistic and Social themes were generally the only valid categories when classified with the three expressed interests. Male and female mean differences also appeared for these two types. Other General Themes, except for some Realistic and Conventional, had little validity for this population.

Concurrent Validity of Strong-Campbell Interest Inventory General Occupation Theme Scores for Males and Females in a Small Liberal Arts College

The Strong-Campbell Interest Inventory General Occupational Theme scores were derived from 20 items for each scale. Items were rationally constructed and separately administered to a sample of men and women. The rationale for each sex was seated in Holland's typology (Campbell & Holland, 1972; Hansen & Johansson, 1972).

Holland's typology (Holland, 1973) uses the symbols R, I, A, S, E, C for Realistic, Investigative, Artistic, Social, Enterprising, and Conventional occupations, respectively. The Strong-Campbell Interest Inventory (Campbell, 1977) incorporated Holland's typology to classify General Themes for men- and women-in-general (Campbell, 1977, p. 33). This classification provides a profile of the six types to relate a person's interests to broad occupational areas at the outset of the interpretation session. General Theme standard scores are based on a combined male-female sample, but the printout interpretation is based upon the respondent's sex. Frequently males and females yield different patterns of interests on General Themes (Campbell, 1977). Although the General Theme scores have been shown valid for each sex, the issues of sex-balanced vs. sex-restrictive items still are being debated (Campbell, 1978; Johnson, 1978; Prediger, & Hanson, 1978; Steinhauer, 1978).

Sinnett, Stone, and Matter (1972) found that college counselors tended to use on the former Strong Vocational Interest Blank a primary (A) score in the relevant occupational group or scale and multiple primary scores to support or to disconfirm a client's expressed first choice. Thus, in clinical

use, the counselors would examine the SVIB to make judgments based upon occupations the client identified as the first expressed choice.

In this study, the first letter of the Holland summary code (Holland, 1973) assigned to a concurrently expressed interest is of particular interest because research has indicated that this letter has the greatest predictive value. Dolliver (1975) found a 24% match of first letters of General Themes with the jobs of employed men. Catron and Zultowski (1977) found the General Themes described different patterns for each of four academic divisions--humanities, social science, natural science, and business. The Humanities Division means were higher on Artistic and lower on Realistic and Conventional than other divisions. The Social Science Division means were like various other Divisions on each scale. Other studies of General Theme concurrent validity have shown: 1) measures (Holland's Self-Directed Search and Vocational Preference Inventory) were highly correlated ($p < .01$) in the positive direction with General Themes for employed men (Gaffey & Walsh, 1974); 2) percentage of General Theme good hits were at least 52% in line with preferred occupation of high school and college students in North Carolina (Whitton, 1975) with no differences when using cross sex, same sex, or no regard to sex, scoring; and, 3) college women's ACT Vocational Interest profiles were highly correlated in the positive direction with their General Themes (Hanson, Lamb, & English, 1975).

The purpose of the present study is to assess the concurrent validity of the SCII General Occupational Theme scores for both males and females. Basis for the validation lies in comparison of Theme scores with expressed interests.

METHODOLOGY

Sample

The sample consisted of 108 females and 77 males enrolled in a required freshman career exploration class in a small liberal arts college in the midwest. Although the class included all freshman, attendance was not required and data collected at the outset indicated 164 (88 percent) of the students had made a tentative or firm choice of major and 118 (64 percent) had made a similar choice of occupation. The college emphasizes art and music curricula and is church-related. Thus, the sample offered a unique opportunity to examine SCII General Theme scores with expressed interests of males and females who were likely to be high in artistic and social interests.

The participants were assigned to one of three classes held on the same day of the week for a semester. The SCII and future possibilities (expressed) interest measures were given early in the semester as prelude to career exploration. Although the course was designed to explore and further test one's choice of college major and subsequent career, participants did enter the testing with background information regarding career choice as evidenced by the large number of students which had made some decision regarding major (88 percent) and career (64 percent).

Instruments

The Strong-Campbell Interest Inventory General Occupational theme scores (Campbell, 1977), and an open-ended questionnaire "Future Possibilities" (Holland, 1974) constituted the tested interest and the concurrent expressed interest measures employed. The measures were completed within a two-week period: "Future Possibilites" was completed during the class and the SCII testing sessions were individually scheduled.

"Future Possibilities" directions read: "List all of the jobs or occupations you could do and would like, if you had enough money to get the necessary training and if you could get that job when you finished your training or education." The first three jobs the student named were classified by Holland's typology and are hereafter called first-named Future Possibilities (First Choice) second-named Future Possibilities (Second Choice), and third-named Future Possibilities (Third Choice).

The rationale for the SVIB was based on inferring one's job interest from expressed interest in activities and in comparing these interests to those of individuals functioning in various careers. Although this theoretic basis may be true for the occupational scales it does not follow that the same premise exists for the construction of the items for the General Theme scores. General Theme items were selected on the basis of Campbell's work (Campbell & Holland, 1972; Hansen & Johansson, 1972) in which he studied Holland's six types utilizing "informed, empirical, interative intuition" and subsequently selected a cluster of items from the SVIB to represent each of Holland's types. As much as possible, he selected items that were occupationally oriented because they wanted to take advantage of the strong stereotypes demonstrated by occupational titles and activities. Therefore, an examinee response to the 20 items for each of the six Themes was designed to assess the relationship of the individual's personality traits to each of the six Themes, not, as might be assumed, to compare the examinee's interests with those of others working in the field.

Analysis

Individuals' six standard scores for the General Occupational themes from the SCII each served as a dependent variable. Point biserial coefficients were computed using the continuous Realistic (R) General Theme score

and dichotomy of either Realistic (R) appearing or not appearing as the first letter on First, Second and Third Choices. Each of the other General Theme scales and first letters were treated the same way. Further, intercorrelations of First, Second, and Third Choice codes were computed. Analysis of variance, SAS general linear models procedure, for unequal N's was calculated by the independent variables of sex by first letters of the First, Second and Third choices using each General Theme in turn as a dependent variable.

Insert Table 1 about here

RESULTS

Intercorrelations of first, second and third choice criterion measures for the females were low but significant (.19 to .38). The three expressed interests of males showed less consistency: the relationship of first and second choices to the third was not significant (see Table 1); males' first and second choices were correlated with General Theme scores at a significant level, but once again the degree of correlation was moderate (.21 to .44). Ten of the females choices and General Theme correlations were low to moderate and significant and thirteen of the males' were significant.

Analysis of variance comparisons of SCII General Occupational theme scores classified by sex and "Future Possibilities" are shown in Table 2 and the means of significant analyses in Tables 3 and 4. Realistic means were

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Insert Table 2 about here

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different by sex on all choices and sex by type on first choice (see Tables 3 and 4). Investigative means on first choice and Enterprising means on second

choice of SCII General Theme Investigative and Enterprising scores were generally significantly different from other means (see Tables 2 and 3). Conventional means on second and third choices differed from all other means except for those people classified as Enterprising on second and third choice. Artistic and Social means were generally significantly different and aligned with the same type of first, second, and third choice (see Tables 2 and 3). Sex differences were found on Realistic and Artistic for first, second and third choices, and for Social on first and third choices (see Tables 2 and 4). The means found significantly different for males and females were of the "moderately low" to "average" range in Campbell's interpretative boundaries (1977, p. 33).

Insert Table 3 about here

Significantly different General Theme scores (see Table 3) indicate that "Future Possibilities" expressed interests (first, second and third choice) generally reflect the highest mean in the same Holland category (as obtained from the SCII General Theme data).

Insert Table 4 about here

DISCUSSION AND IMPLICATIONS

The population was drawn from a small liberal arts college, and choices did not evenly distribute across Holland's typology. That is, approximately 50 percent of the subjects or more were grouped into the Artistic and Social categories on the expressed interests (Table 4). This restricted range of

subjects provided lower r's and thus statistical significance was more difficult to obtain. The lack of relationship among expressed choices for males (Table 1) and the uneven R, I, E, and C means may be indicative of social desirability appearing in some listed occupations. In spite of the difference among criterion measures with males' third choice unrelated to first and second choice and low to moderate size on those that were significant for the females, A and S General Themes demonstrated concurrent validity in all correlations (Table 1) and means or expressed interests (Tables 2 and 3). However, the A and S means were not different for those students expressing A and S choices and one or two other choice types on each expressed interest. These other choice types did not conform to expectations based upon Holland's hexagon. Nevertheless, the close relationship between the two types of A and S interests lends validity to use of the SCII General Themes with students from a small liberal arts college who obtain primary scores in these two areas. The pools of 20 items on the SCII General Themes were chosen to be representative of the characteristics of the types of personality-occupations described by Holland. Campbell (1977) indicated that three point differences on General Theme scales may be taken as "real" differences between types. When students have General Theme scale scores of less than three points between A or S and another scale, all should be discussed at the outset in light of the import of expressed interests.

Holland (1973) noted that Artistic types see themselves as impulsive and that Social types have an aversion to "explicit, ordered, systematic activities involving materials, tools, or machines" (p. 16). Utz and Korben (1976) in a midwestern university population found relationships between predicted Edwards Personal Preference Scale variables and General themes. This construct validity study yielded two of six predicted relationships for Artistic males and three

for females. The Social males yielded three of four predicted EPPS relationships and females, two of four. As Utz and Korben found overall for construct validity of the General Themes, the concurrent validity correlations in the present study are somewhat more useful for males (13 significant of 18) than females (10 of 18 significant). The implication of this finding and that of Utz and Korben is that the General Themes may be more valid for interpreting males's interests than females.

As here observed, expressed interest A and S combined male-female types had higher A and S General Theme means than those choosing other occupational types although the means were only of moderate strength and S General Theme means somewhat less differentiated than A means. Caltron and Zultowski (1977) also found Social Science General Themes less differentiated than Humanities in their population. The personality characteristics of the present population may have contributed to the lack of strength and lack of criterion validity for other General Themes and also to the inconsistency in males' third choice compared with first and second. These differences exist in addition to the observed mean differences in sex General Theme scores in the concurrent interest criterion classifications. The findings for the relationship between I, E, and C expressed interests and the SCII General Occupational theme scores indicated that both expressed and inventoried interests particularly should be used with counselees naming other than A and S possibilities. In an academic milieu such as this it would appear from the lack of concurrent validity of some of the tested interest themes that both expressed and inventoried interest measures are necessary (Nelson, 1971). If a counselor is "disconfirming" an expressed choice by contrasting it with results from

profile data on the SCII (Sinnett et al., 1972), the result may be a substantial contribution to the dissatisfaction of the client with interest measurement and career counseling. Ultimately, what is apparent is a warning to preview at the outset all available data to make sure the clients' "self-explanatory" print-outs from SCII do not create more problems than offer alternatives for exploration.

Data in Table 4 demonstrates that the tested and concurrent expressed interests of males and females in this population are consistent with the expectations of the predominantly Artistic and Social types. Significant sex differences by choice were observed on R, A and S.

REFERENCES

Campbell, D. P. Strong-Campbell Interest Inventory. In O. Buros (Ed.), Eighth mental measurements yearbook. Highland Park, NJ: Gryphon, 1978.

Campbell, D. P. Manual for the Strong-Campbell Interest Inventory (2nd ed.) Stanford, CA: Stanford University Press, 1977.

Campbell, D. P., & Holland, J. L. A merger in vocational interest research: applying Holland's theory to Strong data. Journal of Vocational Behavior, 1972, 2, 353-376.

Catron, D. W., & Zultowski, W. H. Strong-Campbell General Occupational Themes: Profiles of four academic divisions. Measurement and Evaluation in Guidance, 1977, 10, 38-43.

Dolliver, R. H. Concurrent prediction from the Strong Vocational Interest Blank. Journal of Counseling Psychology, 1975, 22, 199-203.

Gaffey, R. L., & Walsh, W. B. Concurrent validity and Holland's theory. Journal of Vocational Behavior, 1974, 5, 41-51.

Harsen, J., & Johansson, C. B. The application of Holland's vocational model to the Strong Vocational Interest Blank for Women. Journal of Vocational Behavior, 1972, 2, 479-493.

Hanson, G. R., Lamb, R. R. & English, E. An analysis of Holland's interest types for women: A comparison of the Strong-Holland and the ACT Vocational Interest profile scales for women. Journal of Vocational Behavior, 1974, 4, 259-269.

Holland, J. L. Making vocational choices: A theory of careers. Englewood Cliffs, NJ; Prentice Hall, 1973.

Holland, J. L. Future Possibilities. Form presented at Kansas State University. Manhattan, KS, July, 1974. (Available from Careers Program, Education Center, Johns Hopkins University, Baltimore, Maryland, 21218).

Johnson, R. Strong-Campbell Interest Inventory. In O. Buros (Ed.) Eighth mental measurement yearbooks. Highland Park, NJ: Gryphon, 1978.

Nelson, A. G. Discrepancy between expressed and inventoried vocational interests. Vocational Guidance Quarterly, 1971, 20, 21-24.

Prediger, D. J., & Hanson, G. R. Must interest inventories provide males and females with divergent vocational guidance? Measurement and Evaluation in Guidance, 1978, 11, 88-98.

Sinnett, E. F., Stone, L. A., & Matter, D. E. Clinical judgment and the Strong Vocational Interest Blank. Journal of Counseling Psychology, 1972, 19, 498-504.

Steinhauer, J. Strong-Campbell Interest Inventory. In O. Buros (Ed.). Eighth mental measurement yearbook. Highland Park, NJ: Gryphon, 1978.

Utz, P., & Korben, D. The construct validity of the occuaptional themes on the Strong-Campbell Interest Inventory. Journal of Vocational Behavior, 1976, 9, 31-42.

Whitton, M. C. Same-sex and Cross-sex Reliability and Concurrent Validity of the Strong-Campbell Interest Inventory. Journal of Counseling Psychology, 1975, 22, 204-209.

Table 1

Means, Standard Deviations and Intercorrelations of Future Possibility Career Choices for Males and Females and Correlations with General Occupational Themes

	$\bar{X}$		SD		First Choice		Second Choice		Third Choice	
	M	F	M	F	M	F	M	F	M	F
Second Choice					42*	24*	-	-		
Third Choice					22	30*	-04	23*	-	-
General Theme										
R	47.8	40.5	11.7	8.8	15	-08	38*	-00	26*	05
I	40.5	39.6	9.4	9.9	31*	28*	23*	13	06	32*
A	41.1	48.4	10.6	10.6	44*	28*	30*	22*	30*	19*
S	45.2	50.6	11.0	10.4	27*	29*	21*	33*	23*	22*
E	47.6	45.3	10.5	8.3	25*	10	29*	04	13	13
C	45.7	45.6	11.5	10.8	32*	-02	18	25*	09	19*

*$p < .05$

Note: Decimals omitted. N = 86 for males, 114 females reducing to 72 and 101, respectively, for Third Choice

Table 2

Summary of Analysis of Variance of Strong Campbell Interest Inventory General Occupational Theme Scores for Sex and Three Future Possibility Career Choices Classified by Holland's Typology

Source	First Choice MS	First Choice F	Second Choice MS	Second Choice F	Third Choice MS	Third Choice F
Realistic Theme						
Sex (A)	2362.5	23.73*	1185.4	12.12*	1115.4	11.01*
FP(B)	55.7	.56	166.9	1.71	122.1	1.21
A x B	332.4	3.34*	176.7	1.81	197.3	1.95
Error	99.5		97.8		101.3	
Investigative Theme						
Sex (A)	284.2	3.07	248.6	2.52	3.8	.04
FP(B)	338.7	3.65*	144.6	1.47	201.2	2.10
A x B	88.1	.95	71.4	.73	87.2	.91
Error	92.6		98.5		96.0	
Artistic Theme						
Sex(A)	563.2	5.65*	698.8	6.69*	1066.8	10.25*
FP(B)	670.4	6.72*	433.0	4.15*	352.3	3.38*
A x B	115.8	1.16	149.0	1.43	19.5	
Error	99.7		104.4		104.1	

Table 2 (cont'd)

Social Theme						
Sex(A)	737.6	6.72*	227.3	2.16	980.6	9.08*
FP(B)	389.9	3.44*	402.2	3.82*	294.5	2.73*
A x B	31.7	.29	125.1	1.19	48.2	.45
Error	109.7		105.2		108.0	
Enterprising Theme						
Sex(A)	272.4	3.27	251.7	3.04	114.8	1.34
FP(B)	135.3	1.62	228.0	2.75*	85.4	1.00
A x B	126.8	1.52	131.8	1.59	49.7	.58
Error	83.3		82.8		85.5	
Conventional Theme						
Sex(A)	51.4	.46	17.8	.15	.5	.00
FP(B)	186.9	1.66	492.2	4.23*	426.1	3.52*
A x B	268.5	2.38*	53.4	.46	68.0	.56
Error	112.9		116.3		121.2	

Note. df(A) = 1; df(B) = 5; df(A x B) = 5; df Error First Choice = 173, Second Choice = 170, Third Choice = 161

* $p < .05$

Table 3

Significantly Different ANOVA Means for Three Choice Classifications[a] on Strong-Campbell Interest Inventory General Occupation Theme Scores

General Theme	R	I	A	S	E	C
First Choice						
Investigative	38.6	48.9	39.8	38.8	38.3	35.7
Artistic	46.4	37.3	51.5	43.5	42.9	38.5
Social	49.2	45.2	43.8	52.2	47.6	48.9
Second Choice						
Artistic	38.6	43.3	50.5	43.2	48.5	42.4
Social	43.0	45.0	45.2	52.3	45.6	51.5
Enterprising	42.8	45.4	43.5	47.3	50.4	51.9
Conventional	45.5	47.7	40.3	44.8	49.7	56.7
Third Choice						
Artistic	42.4	41.4	50.3	46.2	45.9	39.8
Social	47.3	46.3	44.7	52.5	46.0	50.8
Conventional	44.9	46.0	41.2	44.9	53.0	50.9
Sex x First Choice						
Realistic						
Male	52.9	50.9	42.7	44.4	53.4	51.0
Female	35.5	42.1	41.9	40.3	33.9	35.5
Conventional						
Male	45.3	45.7	39.9	43.3	52.5	59.0
Female	53.0	47.3	43.6	[illegible]	42.0	43.5

[a] Highest mean underlined is not significantly different from other underlined means.

Table 4

Significantly Different ANOVA Means

for Sex Main Effects Across SCII Theme Scores

General Theme	N	First Choice	N	Second Choice	N	Third Choice
Realistic						
M	9	49.2	18	46.9	18	47.7
F	2	38.2	5	40.4	4	41.7
Investigative						
M	8	--	8	--	12	--
F	10	--	13	--	10	--
Artistic						
M	14	40.6	11	41.9	10	41.4
F	43	46.0	33	46.9	27	47.2
Social						
M	24	44.7	19	--	16	45.1
F	43	50.9	42	--	37	50.7
Enterprising						
M	16	--	17	--	8	--
F	8	--	7	--	13	--
Conventional						
M	6	--	4	--	8	--
F	2	--	5	--	10	--